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## SUMMARY OF THIS SUPPLEMENT TO THE DEIR FOR THE DRAFT EMP

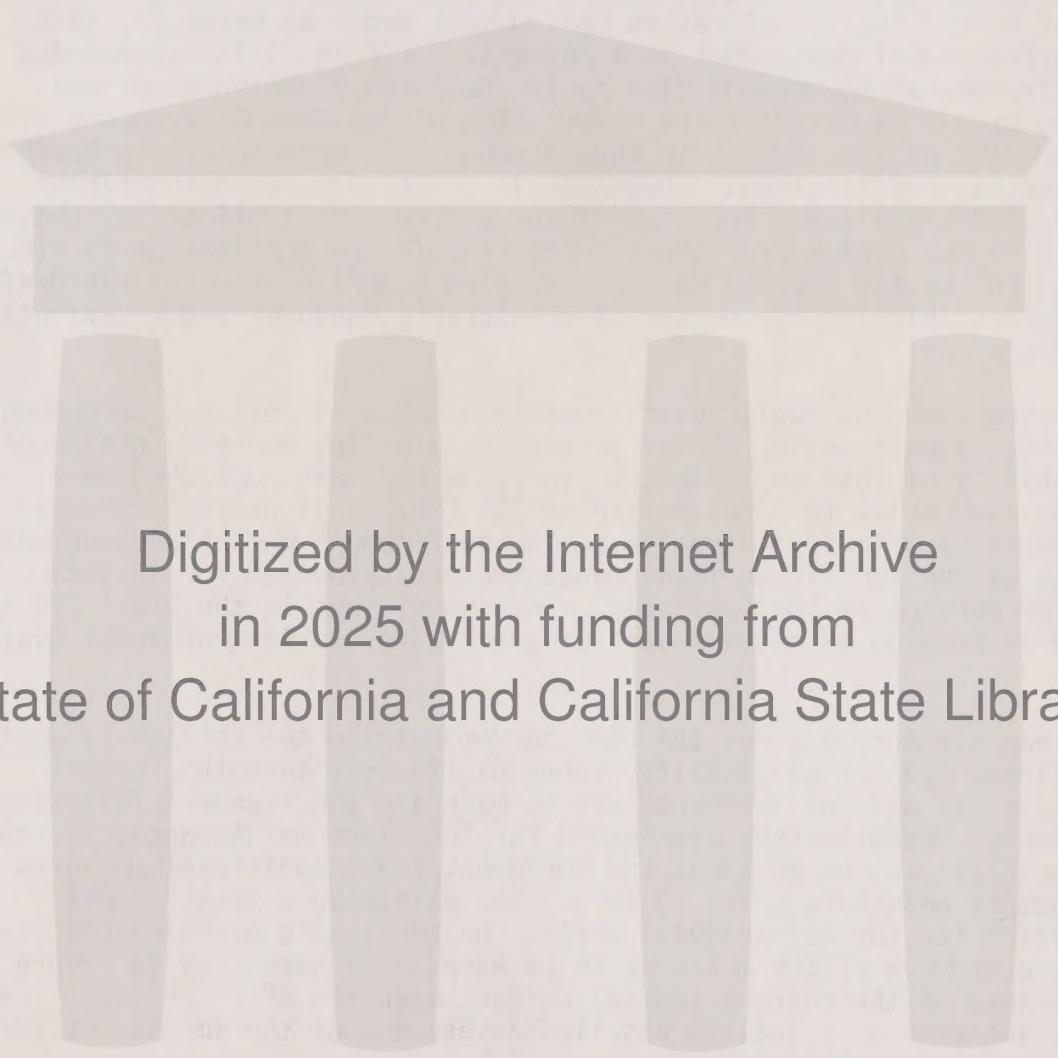
This supplement to the Draft Environmental Impact Report issued on December 31, 1977 addresses the environmental effects of changes to the Draft Environmental Management Plan (EMP) issued by the Association of Bay Area Governments in December 1977. The changes result from public review and comments at public hearings, public meetings and in writing during the formal review period that ended on March 31, 1978. The Environmental Management Task Force on March 16, 1978 recommended an Environmental Management Plan to the Regional Planning Committee and the Executive Board of the Association of Bay Area Governments. The majority of the changes to the December 1977 version of the Draft EMP involve consolidation, reorganization or changes in responsible agency(s) designation. The significant environmental effects of those changes do not differ from those identified in the original Draft EIR. Changes in the Air Quality Maintenance Plan (AQMP) portion of the Draft EMP involve deletion of one set of maintenance measures and substitution of another set.

In keeping with the public participation procedures followed throughout the Association's environmental management planning process, notice of availability of this supplement to the DEIR has been published more than 30 days prior to final action on the EMP. This period provides additional opportunity for public review and comment on the environmental effects of the substitute maintenance measures proposed for inclusion in the AQMP portion of the Draft EMP. This supplement to the Draft EIR is issued in keeping with the spirit of the California Environmental Quality Act.

The Clean Air Act requires the AQMP to demonstrate the ability to meet established Federal air quality standards (in this case the Federal photochemical oxidant standard) and to maintain the standard following attainment. Because they are needed for long-term maintenance, responsible agency(s) action to adopt and implement these additional measures will not be necessary prior to 1985. The maintenance measures are identified for further analysis during the continuing planning process, with one or more of the measures to be adopted as necessary to ensure maintenance of the current Federal oxidant standard after 1985-87. Part of the analysis will include detailed assessment of the impacts of these substitute maintenance measures.

This supplement to the Draft EIR is restricted to the significant environmental effects associated with the substitute maintenance measures proposed for the AQMP portion of the EMP. The major significant environmental effects of the substitute maintenance measures are:

- the air quality effects
- the public health effects
- the physical resources effects
- the energy effects
- the visual amenity effects



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## DESCRIPTION OF THE PROPOSED PROJECT

The December 1977 version of the AQMP portion of the Draft EMP identified four general policies and associated implementing actions to meet and maintain the Federal photochemical oxidant standard. The Draft AQMP constituted a comprehensive strategy to demonstrate attainment and maintenance of that Federal standard. It combined additional technological controls for stationary and mobile sources and transportation and land use controls.

As a result of extensive public review and comment during the three month formal review period, the AQMP was revised. The changes in the major stationary source, mobile source and transportation policies involve consolidation, reorganization, clarification and further definition of terms, and in two instances deletion. The land use management/development controls (General Policy IV - Alter regionwide development patterns to reduce automobile travel by means of local and regional policies on land use and urban services) were deleted on March 16, 1978 by the Environmental Management Task Force (EMTF). The EMTF is the policy advisory body to the ABAG Regional Planning Committee, Executive Board and the General Assembly. On April 20, the Executive Board concurred with the deletion. The net effect of the deletion action was that the revised AQMP (at that time) demonstrated attainment but not long-term maintenance. Seven substitute maintenance measures were proposed for inclusion in the AQMP portion of the Draft EMP. Based on public review and comment on those measures, the Executive Board of the Association of Bay Area Governments on April 20, 1978 selected four measures for inclusion in the AQMP. During the continuing planning process, they will be assessed in further detail. In addition, monitoring of ambient air quality will continue as adopted control measures are implemented to gauge the needed reductions to maintain the Federal oxidant standard once met. No maintenance measure will be adopted by an implementing agency or implemented prior to 1985. This document then briefly addresses the potential significant environmental effects of the identified maintenance measures. Future plan updates (including the non-attainment plans required by the Clean Air Act by 1979 and 1982) will provide more detailed analysis of their effects.

The substitute maintenance measures selected by the Executive Board for inclusion in the AQMP are:

1. Reduce hydrocarbon emissions from small gasoline engines
2. Reduce hydrocarbon emissions from off-highway mobile sources
3. Implement more stringent vehicle exhaust emission controls--approximately 60-80% reduction beyond 1977 prescribed levels
4. Provide additional transit

Measures 3 and 4 are self-explanatory. Measure 1 involves controls for small gasoline engines. Two major categories of engine equipment are involved. The lawnmower (Lawn and Garden Equipment) category consists of push-type mowers, riding mowers, garden tractors, rototillers, golf carts, and miscellaneous lawn and garden implements. The miscellaneous utility engines category consists of small internal combustion engines in equipment such as chainsaws, generators, pumps, compressors (used in painting, sandblasting, surface coating). Engines are either 2-stroke or 4-stroke, with the former being significantly dirtier. Emissions from 2-stroke engines may be up to seven times the emissions from a 4-stroke engine.



Measure 2 involves two major mobile source categories. The farm equipment category includes many types of farm equipment powered by internal combustion engine, but predominant is the farm tractor. The construction equipment category includes vehicles and other equipment used in construction and earth moving, mining and quarrying, and lumber industries and other miscellaneous equipment. Predominant units are tractors (wheeled and track laying); other types are scrapers, graders, loaders, motor generators and compressors. Power is of two types (gasoline and diesel) with the latter being more of an issue for NO<sub>x</sub>, particulates and oxides of sulfur.

### THE SIGNIFICANT ENVIRONMENTAL EFFECTS OF THE PROPOSED PROJECT

As required by the National Environmental Policy Act and the California Environmental Quality Act, this discussion assesses the significant environmental effects of the substitute maintenance measures identified in the revised version of the AQMP portion of the EMP. The significant environmental effects are:

- reductions in hydrocarbon emissions
- improvements in public health
- reductions in damage to vegetation
- potential energy consumption impacts
- visual amenity impacts

The significant environmental effects of the substitute maintenance measures include the direct effects of reduced hydrocarbon emissions. These four measures are estimated to reduce hydrocarbon emissions by 24 tons/day by the year 2000. This reduction is the current estimated tonnage reduction necessary to show long-term maintenance of the Federal photochemical oxidant standard.

Other significant environmental effects of the substitute maintenance measures are the public health benefits, and the reduction in damage to vegetation that are indirect benefits of improved air quality. Because photochemical oxidant has been found to cause eye and nasal irritations, irritation of mucous membranes, respiratory distress, coughing, increased lung fluid, rapid pulse rate, lowered blood pressure, asthma attacks and overall decreases in the quality of human performance, the reductions in hydrocarbon emissions and thus exposure to photochemical oxidant and ozone concentrations should evidence decreased incidences of these problems. The benefits would be particularly significant for sensitive population groups such as the elderly, children and the chronically or temporarily ill. The general population should also benefit from the reductions. Although the long-term exposure effects from moderate levels are not as easily observed as those from short-term exposure to high levels of pollutants, reduced emissions and concentration levels should have beneficial health effects.

Reductions in adverse biological effects on vegetation would result from improved air quality. Included in the adverse effects on vegetation that would decrease are: visible injury and discoloration of foliage, leaf drop, reduced plant vigor and growth, and reduced total loss (plant death).



Trees, shrubs and many agricultural crops in the Bay Area are affected by the oxidant levels which occur here. Certain crops are no longer grown here (snap dragons, chrysanthemums) and others evidence serious damage (grapes, carnations, orchids). Crops such as grapes and ornamental plants are specialty crops grown in few other parts of the country. They are an important component of the region's economy. To realize their productive value, certain specialty crops must be grown in locations proximate to urban areas. Cut flowers are an example of such a specialty crop. Many ornamental growers have moved to Half Moon Bay and Salinas to avoid air pollution damage. Improved air quality would improve the viability of this important sector of the Bay Area economy.

The additional engine exhaust emission controls (small gasoline engines, off-highway mobile sources) and even more stringent vehicle exhaust emission controls - 60-80% reduction beyond 1977 prescribed levels - have additional significant environmental effects.

Reductions achieved by use of improved technologies for conventional engines should not have significant physical resource impacts. Use of alternative fuel sources could require new materials for engine manufacture (e.g. batteries for electrically powered vehicles). New engine technologies may result in the use of less specialized fuels, thereby reducing dependence on gasoline or petroleum. As more off-highway mobile sources are produced with diesel engines, the effect will be reduced demand for gasoline by this consumer sector. This could result in savings of thousands of barrels of oil each year. Improved mileage and efficiency gains realized in this category of controls could mean annual savings of millions of barrels of oil. An improvement in the visual quality of the region's air is another expected significant environmental effect. The reduction in hydrocarbon emissions from all of the additional vehicle emission controls would have positive health benefits as noted earlier.

The other identified maintenance measures--additional transit service--focuses on reducing motor vehicle emissions by reducing automobile use. In addition to the environmental effects noted for the substitute maintenance measures in general, another significant environmental effect would be the positive energy benefits from gasoline savings.

Estimated reductions of 2.2-4.4 million vehicle miles traveled (VMT) would be associated with a 25% increase in transit (for example). This would result in a savings of approximately 81,000 - 1.6 million gallons of gasoline. An example 50% increase in transit would result in reductions of approximately 3.3 - 6.5 million VMT for a savings of 1.2 million to 2.4 million gallons of gasoline. These savings result from reduced auto use, shifts to transit as well as from traffic flow improvements.



ANY SIGNIFICANT ENVIRONMENTAL EFFECTS WHICH CANNOT BE AVOIDED IF THE PROPOSAL IS IMPLEMENTED AND STEPS TO MINIMIZE THE SIGNIFICANT EFFECTS

The off-highway mobile source controls could potentially increase levels of carbon monoxide and oxides of nitrogen and sulfur. This potential direct effect of controls aimed at hydrocarbon emission reductions is associated with switching from gasoline powered to diesel powered engines. The potential for increased levels of CO, NO<sub>x</sub> and oxides of sulfur (SO<sub>2</sub>) assumes that reductions in hydrocarbon emissions would be implemented solely by fuel switching (i.e. from gasoline to diesel fuel) without concomitant diesel emissions control technology. However, manufacturers of the major types of off-highway mobile sources (agricultural tractors and construction equipment--tractors, scrapers, graders, loaders, etc) are already working on lowering emissions from those engines. Diesel emission control technology is advancing and can be expected to be fairly sophisticated by the late 1980s and early 1990s when these hydrocarbon controls would be adopted and implemented if necessary to maintain the current Federal photochemical oxidant standard. In addition, non-attainment plans and other plans to be prepared under the 1977 Clean Air Act Amendments should provide for attainment and maintenance of other Federal air quality standards.

During the continuing planning process, control plans will be proposed for carbon monoxide, nitrogen dioxide, sulfur dioxide and particulates as needed to meet Federal standards and the requirements of the Clean Air Act. Many of the sources for which controls are proposed for long-term maintenance of the Federal photochemical oxidant standard will probably be controls considered for inclusion in those future control strategies. As a result, any potential increases in pollutant levels occurring as hydrocarbon emissions are reduced would be mitigated through emission controls instituted through the other control plans.

Similarly, any potential adverse public health effects associated with increased levels of these other pollutants as hydrocarbon emissions are reduced through fuel switching (via changes from gasoline to diesel powered engines) would be mitigated through the reductions in those other pollutants achieved through the future CO, NO<sub>x</sub>, SO<sub>2</sub> and TSP control plans.

Other significant (adverse) environmental effects which cannot be avoided are associated with the increased consumption of diesel fuel due to increased transit. For example, a 25% improvement in transit service would constitute approximately 855 additional buses running an estimated 26.8 million miles per year by the year 2000. The diesel fuel consumed in such additional bus service is equivalent to 131 thousand barrels of crude oil per year, or 5.5 million gallons of gasoline. A 50% improvement in transit service equals approximately 1710 buses running an estimated 5.36 million miles per year by 2000 and consuming the equivalent of 263 thousand barrels of crude oil per year or 11 million gallons of gasoline. The increases in consumption of diesel fuel to provide additional transit cannot be mitigated. Improved diesel engine technology may result in increased fuel efficiency thus lowering consumption to some degree. Increases in consumption of diesel fuel may be traded off against estimated reductions in gasoline consumption as vehicle miles travelled by car are reduced.



Increases in transit service will also contribute to increased levels of carbon monoxide and oxides of nitrogen and sulfur. Localized increases in the levels (concentrations) of these pollutants may have adverse public health effects. These adverse effects will be mitigated as control plans will be developed for meeting established Federal standards for CO, NO<sub>x</sub> and SO<sub>2</sub>.

#### ALTERNATIVES TO THE PROPOSED ACTION

##### The No Action Alternative

One alternative to identifying substitute maintenance measures is no action. The Clean Air Act requires the AQMP to show attainment and continued maintenance of the oxidant standard once attained. Submission of a plan that does not show long-term maintenance of the photochemical oxidant standard once met is thus not acceptable. Therefore the no action alternative is not feasible.

##### Other Alternatives Considered

In addition to the compact development (land use management/development controls) originally proposed for the AQMP but not recommended in the AQMP, a total of seven substitute measures for maintenance of the oxidant standard through the year 2000 were considered for identification and inclusion in the AQMP portion of the EMP recommended by the ABAG Executive Board. The alternative measures not selected were:

- Increase gas tax
- Implement roadway pricing
- Parking strategies

Table 3 of the Draft EIR lists all other alternatives considered for inclusion in the AQMP. The seven maintenance measures considered were taken from that list. All other alternatives on the table are alternatives to those identified or selected as maintenance measures. Table 3 of the Draft EIR is incorporated by reference.

#### RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES OF MAN'S ENVIRONMENT AND THE MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

The substitute maintenance measures would have significant benefits for the maintenance and enhancement of long-term productivity. One result of new engine technologies and pollution controls may be improved fuel efficiencies. The attendant energy savings will contribute to long-term productivity of resource supplies (oil). Transit improvements reducing growth in vehicle miles travelled (VMT) by automobile are estimated to result in noted energy savings. Recommendations that result in fuel switching from gasoline to diesel and additional transity (using diesel power) may slightly increase consumption of diesel fuel in the short-term while in the long-term fuel efficiency and reduced VMT/passenger should compensate for the short-term increases. Improved engine technologies may result in the use of less specialized fuels, which would contribute to some degree to the maintenance and enhancement of long-term productivity of these resources.

Any short-term effects should be considered in relation to the maintenance of ambient air quality. The purpose of these measures is to ensure long-term maintenance of the photochemical oxidant standard once met.



ANY SIGNIFICANT IRREVERSIBLE ENVIRONMENTAL CHANGES WHICH WOULD BE INVOLVED IN THE PROPOSED ACTION SHOULD IT BE IMPLEMENTED

The substitute maintenance measures identified for inclusion in the AQMP portion of the EMP recommended by the Executive Board to the General Assembly should not result in irreversible changes (adverse) to the environment. The AQMP maintenance measures are intended to maintain the air quality improvements effected through controls to meet the oxidant standard. The indirect benefits of improved air quality are the positive effects on vegetative resources and public health. These improvements are the benefits of reversal of the significant irreversible environmental changes expected without reductions in hydrocarbon emissions and maintenance of the Federal photochemical oxidant standards.

THE GROWTH INDUCING IMPACTS OF THE PROPOSED ACTIONS

There are no growth inducing impacts of the identified maintenance measures.

CONSULTATION WITH OTHER AGENCIES

Staff of the Bay Area Air Pollution Control District, Air Resources Board, and the Metropolitan Transportation Commission aided in background analysis used in preparation of this supplement, prepared by ABAG staff.

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